

: SEARCH USING GRAPH COLORIZATION AND PERSONALIZED BOOKMARK PROCESSING Title:

Inventors: Pavel Berkhin/Docket No.: 50269-0690/Serial No.: 10/812,719 Replacement Drawing

1/4.



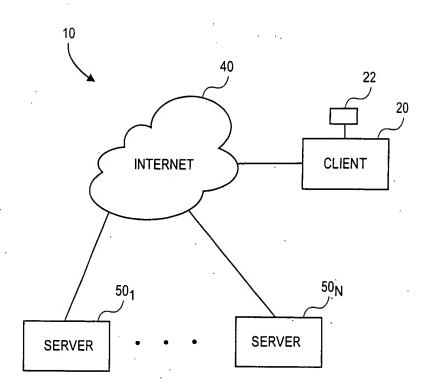


FIG. 1

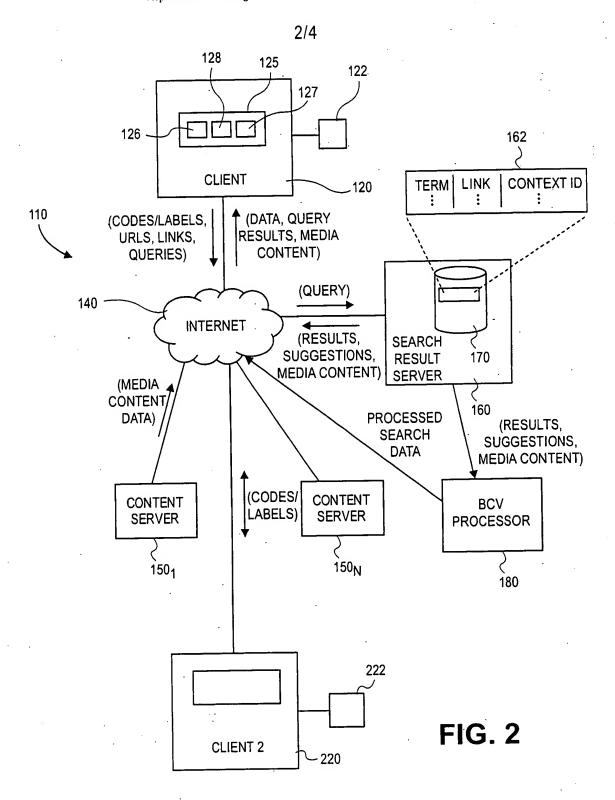
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BOOKMARK PROCESSING

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Replacement Drawing





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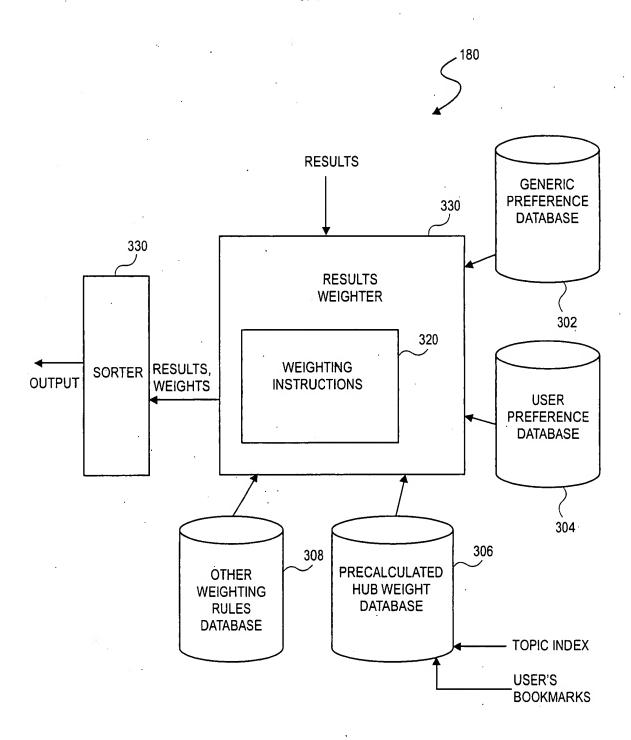


FIG. 3



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```
p = BCP (b, w, \alpha)  Bookmark-Coloring Process Input: A bookmark b, a promotional amount w, a retention coefficient \alpha. Output: BCV p. p = 0 p_b += \alpha \cdot w if ( stopping criterion is met) stop for all links b \rightarrow j in L p = p + BCP (j, (1 - s) \cdot w / deg(b), \alpha) end for
```

FIG. 4

```
p = BCP(b, \alpha, e) Bookmark-Coloring Process
Input: A bookmark b, a retention coefficient \alpha, and a tolerance threshold e.
Output: BCV p.
Initialize Q as a single pair queue {(b,1)}
while ( Q is not empty )
        pop a queue Q element (i, w)
        pi += \alpha \cdot w
                                                        // retained portion
        if(w<e)
                                                        // stopping criterion
                continue
                                                        // to beginning of while-loop
        z = (1 - \alpha) \cdot w / \deg(i)
                                                        // distributed amount
        for all links i \neq j in L
                                                        // i is fixed: direct link access
                if ( pair (j, s) is present in Q )
                                                        // direct Q access
                        s += z
                                                        // existent element update
                else
                                                        // no j element in the queue
                        add a new pair(j, z) to Q
                                                        // new queue element
        end for
end while
```

FIG. 5

```
[v, s] = BC (b, w, \alpha| H) H-Relative Conceptual Bookmark-Coloring Process Input: A bookmark b \notin H, an amount w, a coefficient, and a hub H. Output: H-relative BCV v and blocked s. v = 0, s = 0 if (b \in H) s_b += w else p_b += \alpha \cdot w if (stopping\ criterion\ is\ met) stop for all links b j in L [v, s] = [v, s] + BCP (j, (1 - \alpha) •w /deg(b), \alpha | H) end for end else
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Appl. No.: 10/812,719 Amend. Dated: June 20, 2007 Reply to Final Office Action of 02/20/07 Replacement Sheet

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Input: A bookmark b, a promotional amount w, a retention coefficient \alpha.
Output: BCV p.
p = 0
p_b += \alpha \cdot w
if ( stopping criterion is met) stop
for all links b \rightarrow j in E
p = p + BCP (j, (1 - \alpha) \cdot w / deg(b), \alpha)
end for
```

FIG. 4

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p = BCP(b, \alpha, e) Bookmark-Coloring Process
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Initialize Q as a single pair queue {(b,1)}
while (Qis not empty)
       pop a queue Q element (i, w)
                                                      // retained portion
       pi += \alpha \cdot w
                                                      // stopping criterion
       if(w<e)
                                                      // to beginning of while-loop
               continue
                                                      // distributed amount
       z = (1 - \alpha) \cdot w / \deg(i)
       for all links i \rightarrow j in E
                                                      // i is fixed: direct link access
                                                      // direct Q access
               if ( pair (j, s) is present in Q )
                       s + = z
                                                      // existent element update
                                                      // no j element in the queue
               else
                                                      // new queue element
                       add a new pair(i, z) to Q
       end for
end while
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```